

EE2002 Introductory Circuits and Electronics Laboratory

Updated: Feb. 2 2013

This course outline is to serve as a reference for instructors and students. It gives a general overview of course content and ABET Outcomes. Please consult the semester specific syllabus produced by the course instructor for more detailed information.

Course Prerequisites, Basic Content, and Outcomes

Catalog Description:

(1.0 cr; Prereq-2001 or & 2001; fall, spring, summer, every year)

Introductory lab in electronics to accompany 2001. Experiments with simple circuits. Familiarization with basic measurement tools and equipment.

Contact Hours: 2 hours of lab per week.

Text: Lab manual downloaded from class home page

Prerequisites by Topic: Linear algebra and differential equations, linear circuits at the introductory level (co-requisite).

Course Outcomes:

- 1) A familiarity with operation of the following pieces of laboratory equipment: dc power supplies, volt-ohm meters, ammeters, and oscilloscopes.
- 2) An ability to construct basic circuits such as: resistive networks, diode switching circuits, common emitter biased transistors, and basic inverting and non-inverting op-amp circuits.
- 3) The ability to record and documents in a laboratory notebook in accordance with standard engineering practice.

Relationship to Student Outcomes: In accordance with ABET accreditation criteria, all engineering programs must demonstrate that their students achieve certain outcomes. This list of outcomes may be found on the ABET.org website. Of the outcomes listed in the ABET criteria (enumerated as (a) through (k)), this course teaches skills which help the student achieve the following outcomes:

- (a) an ability to apply knowledge of mathematics, science, and engineering
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data
- (e) an ability to identify, formulate, and solve engineering problems
- (g) an ability to communicate effectively
- (i) a recognition of the need for, and an ability to engage in life-long learning
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Course Outline

<u>Week</u>	<u>Lecture Topics</u>
1	Equipment Familiarization
2	DC Measurements
3	DC Measurements
4	Circuit Theorems
5	Lab Quiz #1
6	I-V curves and Load Lines
7	Diodes and Rectification
8	MOSFET characteristics and amplifiers
9	MOSFET characteristics and amplifiers
10	Op Amps
11	Lab Quiz #2
12	No Labs -Thansgiving
13	RC and RL Transients
14	RLC Transients
15	Catchup

Departmental and University Policies

Student Academic Integrity and Scholastic Dishonesty: Academic integrity is essential to a positive teaching and learning environment. All students enrolled in University courses are expected to complete coursework responsibilities with fairness and honesty. Failure to do so by seeking unfair advantage over others or misrepresenting someone else's work as your own, can result in disciplinary action. The University Student Conduct Code defines scholastic dishonesty as follows:

Scholastic Dishonesty: Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering forging , or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis.

Within this course, a student responsible for scholastic dishonesty can be assigned a penalty up to and including an "F" or "N" for the course. If you have any questions regarding the expectations for a specific assignment or exam, ask.

Incompletes: A grade of I for Incomplete is given at the discretion of the course instructor when, due to extraordinary circumstances, the student who has successfully completed a substantial portion of the course's work with a passing grade was prevented from completing the work of the course on time. Students must fill out an Incomplete Grade Agreement form found in Keller 3-166. The maximum time to remove and replace an incomplete grade is one year.

Makeup Work for Legitimate Absences: Consult university policy here:
<http://policy.umn.edu/Policies/Education/Education/MAKEUPWORK.html>

Personal Electronic Devices: Consult university policy here:
<http://policy.umn.edu/Policies/Education/Education/CLASSROOMPED.html>

Mental Health: As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. University of Minnesota services are available to assist you with addressing these and other concerns you may be experiencing. You can learn more about the broad range of confidential mental health services available on campus via the Student Mental Health Website at <http://www.mentalhealth.umn.edu>